CLAS-XII/PHYSICS

CHAPTER-6

ELECTROMAGNETIC INDUCTION

1. The magnetic flux linked with a loop placed in field is given by φ = 6t2 + 7t + 1, where t is in seconds and φ is in milliweber. How much emf will be induced at t = 2s?
2. The current passing through the wire AB is increasing. In which direction does the induced current flow in the loop?
3. A solenoid of length l metre has self-inductance L henry. If number of turns are doubled (without any change in its length), what is its new self-inductance?
4. Current in a circuit falls from 5A to 1A in 0.1 second. If an average emf of 200 volts is induced, find the self - inductance of the coil. 19.A plot of magnetic flux(ϕ) versus current(I) is shown in the figure for the two inductors A and B. Which of the two has larger value of self inductance?
5. Which of the following can produce maximum induced emf?
   (a) 50A, DC (b) 50A, 50Hz AC
   (b) 50A, 500Hz AC (d) 100A, DC
6. A pair of adjacent coils has a mutual inductance of 1.5H. If the current in one coil changes from 0 to 20A in 0.5s, (i) what is the change of flux linkage with the other coil? (ii) what is the emf induced in the other ?
7. Derive an expression for the energy stored in an Inductor.
8. Why a.c. is preferred for all commercial purposes?
9. A jet plane is travelling towards west at a speed of 1800km/h. What is the voltage difference developed between the ends of the wing having a span of 25m, if the earth's magnetic field at the location has a magnitude of 5x 10-4T and dip angle is 30o .
10. Explain the principle, construction and working of an A.C. Generator.